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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/726,461

12/03/2003

Paul G. Wilson

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PATENT DEPARTMENT  
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EXAMINER

CHOI, PETER Y

ART UNIT

PAPER NUMBER

1771

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/726,461

Applicant(s)

WILSON ET AL.

Examiner

Peter Y. Choi

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-25,51 and 52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-25,51 and 52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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### **FINAL ACTION**

1. Examiner telephoned Attorney for Applicants indicating a possible typographical error in claim 21. Attorney for Applicants indicated that reference to claim 1 in claim 21 was a typographical error and should have indicated claim 14 instead of claim 1. For purposes of this Final Action, claim 21 is examined as depending from claim 14. Applicants agreed to amend claim 21 in response to this Final Action.

### ***Response to Amendment***

2. The rejection of claims 1, 4-25, 51 and 52 under 35 U.S.C. 102(b) and 103(a) has been withdrawn due to Applicants' amendment. However, Applicants' amendment necessitated the new grounds of rejection presented in this Office Action.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4-9, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 4,250,221 to Pfeffer.

Regarding claims 1, 4-9, and 12, Pfeffer discloses a fiberglass mat formed by a wet process comprising a first surface comprising a pattern of wet-laid fibers directionally aligned in a plurality of crossing linear formations (12 and 13) and a second surface opposed to and coextensive with the first surface, the second surface comprising a collection of randomly

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dispersed wet-laid fibers (see entire document including figures 1 and 2, claim 1, column 7 lines 7-25). The purpose of the fiberglass mat is to provide a mat having high tear resistance in all directions and adequate mechanical strength throughout its entire body (column 4 lines 28-35).

Regarding claim 4, the fibers may be glass fibers (column 4 lines 36-38).

Regarding claim 5, the fibers comprise a diameter within the range of 9-16 microns (column 6 lines 48-56).

Regarding claim 6, the fibers comprise a length of 0.50 to 1.5 inches (column 6 lines 48-56).

Regarding claims 7-9, the fiberglass mat may further comprise a binder among the directionally aligned and randomly dispersed fibers which may be organic and may comprise approximately 20% of the final product (column 4 lines 39-42, column 6 lines 57-62, column 8 lines 3-13).

Regarding claim 12, the mat product has a tear strength under the Elmendorf Tear Test of about 466 grams when the product has a weight of 1.85 lbs. per 100 sq.ft. and when 20% of the weight of the fiber article is binder material (column 9 lines 45-57). Although the tear strength, weight of the article and weight percentage of the binder in the prior art do not correspond directly to those claimed, the claimed properties are deemed to be inherent to the structure in the prior art. The burden is on the Applicants to prove otherwise. *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 4-9, 11-18, 20-25, 51 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,158,824 to Gill in view of USPN 4,250,221 to Pfeffer.

Regarding claims 1, 4-9, 11-18, 20-25, 51 and 52, Gill discloses a non-woven fibrous mat of generally random fiber orientation with built up lines or strips of fiber formed therein directionally oriented to enhance the strength and/or appearance of the mat. Gill teaches that the mat is made by a wet mat process (wet-laid) (Abstract). The mat comprises an area of generally random fiber orientation and an area of directionally oriented fibers (see figure 3). Gill does not appear to teach an embodiment comprising two opposed surfaces wherein the second surface is coextensive with the first surface. However, Pfeffer discloses that distinctly separating the different reinforcing strand configurations into separate planes results in structural strengthening to resist tearing and breaking (see entire document including column 9 lines 25-57).

It would have been obvious to one skilled in the art at the time the invention was made to combine layers of the invention in Gill into separate planes, as taught by Pfeffer, motivated by the desire to improve structural strengthening and resist tearing and breaking. It should be noted that Examiner equates the first mat comprising an area of generally random fiber orientation to the first claimed surface, and the second mat comprising an area of directionally oriented fibers to the second claimed surface.

Regarding claims 4 and 15, the fibers may be glass fibers or synthetic fibers (Pfeffer, column 4 lines 36-38; Gill, column 2 lines 55-69).

Regarding claims 5-9, 16-18, and 25, while Gill is silent with regards to specific materials, it would have been necessary and thus obvious to look to the prior art for conventional

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materials. Pfeffer provides this conventional teaching showing that it is known in the art to use fibers comprising a diameter within the range of 9-16 microns (Pfeffer, column 6 lines 48-56) and comprising a length of 0.50 to 1.5 inches (Pfeffer, column 6 lines 48-56). Additionally, Pfeffer teaches that the fiberglass mat may further comprise a binder among the directionally aligned and randomly dispersed fibers which may be organic and may comprise approximately 20% of the final product (Pfeffer, column 4 lines 39-42, column 6 lines 57-62, column 8 lines 3-13). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the fibrous mat from Pfeffer motivated by the expectation of successfully practicing the invention of Gill.

Regarding claims 11 and 21, Gill appears to teach the first layer comprising a thickness of about 50% of the total thickness of the fiber material.

Regarding claims 24, 51 and 52, Pfeffer appears to teach the first and second pluralities of fibers both horizontally dispersed to a substantially uniform thickness as required by claims 24 and 52, and the directionally aligned fibers comprising the first surface having an overall thickness substantially equal to the thickness of one of the linear formations as required by claim 51 (see figures 2 and 5).

Regarding claims 12 and 22, the mat product has a tear strength under the Elmendorf Tear Test of about 466 grams when the product has a weight of 1.85 lbs. per 100 sq.ft. and when 20% of the weight of the fiber article is binder material (Pfeffer, column 9 lines 45-57).

Although the tear strength, weight of the article and weight percentage of the binder in the prior art do not correspond directly to those claimed, the claimed properties are deemed to be inherent to the structure in the prior art. The burden is on the Applicants to prove otherwise. *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980).

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Regarding claims 13 and 23, neither Gill nor Pfeffer appears to disclose the thickness of the first non-woven layer about 0.002 to 0.010 inches as required by claims 13 and 23. It should be noted that layer thickness is a result effective variable. As the thickness and weight of the first layer increases, the material becomes stiffer. Absent unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the layer thickness since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 233 (CCPA 1955). In the present invention, one would have been motivated to optimize the layer thickness in order to create a strong, thin and flexible composite.

7. Claims 7-10, 18, 19, and 25 are rejected under 103(a) as being unpatentable over USPN 5,158,824 to Gill in view of USPN 4,250,221 to Pfeffer, as applied to claims 1, 4-9, 11-18, 20-25, 51 and 52 above, and further in view of USPN 4,258,098 to Bondoc.

The features of Gill and Pfeffer are set forth above. Neither Gill nor Pfeffer appears to teach an organic binder which may be acrylic latex, urea-formaldehyde, SBR latex, acrylic emulsions, and mixtures thereof as required by claims 10 and 19.

Bondoc is directed to a glass fiber mat with improved binder (Title). Bondoc teaches using urea-formaldehyde and styrene-butadiene latex as the binder where the binder comprises about 10-30% by weight. Bondoc teaches that the latex is a stable emulsion which makes it highly advantageous in commercial use (column 3 lines 25-31). Bondoc teaches that the mat has excellent tensile strength and flexibility (claim 1).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to use 10-30% weight binder as suggested by Bondoc in the mat of Gill modified by Pfeffer, motivated by the desire to form a glass mat, with a suitable binder (Pfeffer, column 6 lines 57-62; Gill, column 4 lines 10-15 and Title), with excellent tensile strength.

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1, 4-25, 51, and 52 have been considered but are moot in view of the new grounds of rejection.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Y. Choi whose telephone number is (571) 272-6730. The examiner can normally be reached on Monday - Friday, 08:00 - 15:00.



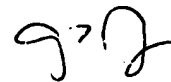
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Peter Y. Choi  
November 21, 2006



ANDREW PIZIALI  
PRIMARY EXAMINER